

Application No.: 10/782,369

Docket No.: JCLA12973

AMENDMENT**In The Claims:**

Claim 1. (currently amended) A method for forming a patterned photoresist layer, being used to form a patterned photoresist layer aligned with a predetermined wafer layer and comprising:

- (a) forming a photoresist layer on a substrate;
- (b) exposing the photoresist layer;
- (c) measuring an overlay offset between exposed portions of the photoresist layer and the predetermined layer right after the photoresist layer is exposed;
- (d) determining whether the overlay offset is acceptable or not; and
- (e) developing the photoresist layer if the overlay offset is acceptable.

Claim 2. (original) The method of claim 1, further comprising the following process before the step (e) if the overlay offset is not acceptable:

repeating a step (f) of removing photoresist and the steps (a), (b), (c) and (d) in sequence for at least one cycle until the overlay offset is determined to be acceptable in step (d), wherein an exposure condition in step (b) of each cycle is calibrated according to the overlay offset measured in step (c) of the preceding cycle.

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Claim 3. (original) The method of claim 1, wherein the step of exposing the photoresist layer produces a latent image in the photoresist layer, and the step of measuring the overlay offset comprises:

providing a laser beam; and
scanning the latent image with the laser beam and analyzing a signal generated from the laser scanning to derive the overlay offset.

Claim 4. (currently amended) A method for forming a patterned photoresist layer, being used to form a patterned photoresist layer aligned with a predetermined wafer layer and comprising:

- (a) forming a photoresist layer on a substrate;
- (b) using an exposure/overlay-measurement tool to expose the photoresist layer to form a latent image in the photoresist layer;
- (c) using the exposure/overlay-measurement tool to measure an overlay offset between the latent image and the predetermined layer right after the latent image is formed;
- (d) comparing the overlay offset with a predetermined value; and
- (e) developing the photoresist layer if the overlay offset is smaller than the predetermined value.

Claim 5. (original) The method of claim 4, further comprising the following process before step (e) if the overlay offset is larger than the predetermined value:

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repeating a step (f) of removing photoresist and the steps (a), (b), (c) and (d) in sequence for at least one cycle until the overlay offset is found to be smaller than the predetermined value in step (d), wherein an exposure condition in step (b) of each cycle is calibrated according to the overlay offset measured in step (c) of the preceding cycle.

Claim 6. (original) The method of claim 5, wherein calibrating the exposure condition according to the overlay offset comprises:

feeding back a control signal generated based on the overlay offset to the exposure/overlay-measurement tool to order the exposure/overlay-measurement tool to calibrate the exposure condition.

Claim 7. (original) The method of claim 4, wherein measuring the overlay offset comprises:

scanning the latent image with a laser beam provided by the exposure/overlay-measurement tool; and

analyzing a signal generated from the laser scanning to derive the overlay offset.

Claims 8-14 (canceled)